

Appl. No. 09/743,560
Amdt. dated December 8, 2003
Amendment under 37 CFR 1.116 Expedited Procedure
Examining Group

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 1-7 (Canceled)

1 8. (Currently amended): Sample observation method comprising steps of:
2 acquiring, at a first scale factor, a reference sample image not including any
3 defect on a sample with an imager, based on information on a defect on the sample detected by
4 an inspection apparatus;

5 moving the sample in a viewing field of the imager and acquiring a defective
6 sample image including the defect on the sample at a-the first scale factor with the imager, based
7 on the information on the defect on the sample detected by the inspection apparatus;

8 locating the defect on the defective sample image by comparing the reference
9 sample image and the defective sample image;

10 acquiring a magnified image of the located defect at a second scale factor greater
11 than the first scale factor with the imager without moving the sample; and
12 displaying the magnified image of the defect on a screen.

1 9. (Currently amended): Sample observation method comprising the steps
2 of:

3 acquiring, at a first scale factor, a reference sample image not including any
4 defect on a sample with an imager, based on information on a defect on the sample detected by
5 an inspection apparatus;

6 adjusting a position of the sample so that the defect will fall within the field of
7 view of said imager, based on the information;

8 acquiring a defective sample image including the defect on the sample at a-the
9 first scale factor by said imager;

10 locating the defect on the defective sample image by comparing the reference
11 sample image and the defective sample image;

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12 acquiring a magnified image of the located defect at a second scale factor greater
13 than the first scale factor with said imager without changing the position of the sample; and
14 displaying the magnified image of the defect on a screen.

1 10. (Previously presented): Sample observation method according to claim 9
2 further comprising, subsequent to the step of acquiring a magnified image, a step of:
3 erasing a background from the magnified image of the located defect.

1 11. (Previously presented): Sample observation method according to any one
2 of claims 8, 9, and 10, wherein the reference sample image and the defective sample images are
3 the images of the sample captured in secondary electrons emanated from the sample by
4 irradiation of a charged particle beam.

1 12. (Currently amended): An apparatus for observing samples, comprising:
2 image pickup means for acquiring an image of a sample;
3 storage means to store information of an area to be observed on the sample;
4 a position controller to control a position of the sample with respect to the image
5 pickup means, based on the information stored in the storage means;
6 display means to display images of the sample acquired by the image pickup
7 means; and
8 control means to locate a defect on the sample by comparing a plurality of images
9 of the sample captured by the image pickup means at a first scale factor after the sample is
10 positioned by the position controller and to control the image pickup means to acquire the a
11 located defect image at a second scale factor greater than the first scale factor without changing
12 the position of the sample.

13 wherein the plurality of images includes a reference sample image acquired by
14 positioning the sample so that a reference area that is absent any defect is positioned within a
15 viewing field of the image pickup means.

16 wherein the plurality of images includes a defect sample image acquired by
17 positioning the sample to a defect position such that a defect area that includes at least one defect
18 is positioned within the viewing field of the image pickup means.

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19 wherein the located defect image is acquired by imaging an area of the sample
20 determined based on a comparison of the reference sample image with the defect sample image
21 without repositioning the sample from the defect position.

1 13. (Previously presented): An apparatus for observing samples, comprising:
2 storage means to store information on a defect on a sample detected by an
3 external defect inspection apparatus;
4 image pickup means for acquiring an image of the sample;
5 position control means to control a position of the sample, based on the
6 information stored in the storage means;
7 defect locating means to locate the defect by comparing an image of the sample
8 not including the defect and an image of the sample including the defect, wherein both of the
9 images are acquired at a first scale factor by the image pickup means after the sample is
10 positioned by the position control means; and
11 display means to display an image of the defect located by the defect locating
12 means and captured by the image pickup means at a second scale factor that is greater than the
13 first scale factor without changing the position of the sample.

1 14. (Previously presented): An apparatus for observing samples, comprising:
2 image pickup means for acquiring an image of the sample;
3 position control means to control a position of the sample so that a defect on the
4 sample will fall within the field of view of the image pickup means, based on information on the
5 defect on the sample detected by an external defect inspection apparatus;
6 defect locating means to locate the defect by comparing an image of the sample
7 not including the defect and an image of the sample including the defect, wherein both of the
8 images are acquired by the image pickup means at a first scale factor after the sample is
9 positioned by the position control means; and
10 display means to display an image of the defect located by the defect locating
11 means and captured by the image pickup means at a second scale factor that is greater than the
12 first scale factor without changing the position of the sample.

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1 15. (Previously presented): Sample observation equipment according to any
2 one of claims 12 , 13 , and 14; wherein the image pickup means is a scanning electron
3 microscope.

1 16. (Previously presented): Sample observation method according to claim 8,
2 further comprising steps of:
3 moving the sample to acquire a magnified image of the reference sample with the
4 imager;
5 acquiring a magnified image of the reference sample at the second scale factor
6 with the imager; and
7 displaying the magnified image of the reference sample on the screen with the
8 magnified image of the located defect.

1 17. (Previously presented): Sample observation method according to claim 9,
2 further comprising steps of:
3 moving the sample to acquire a magnified image of the reference sample with the
4 imager;
5 acquiring a magnified image of the reference sample at the second scale factor
6 with the imager; and
7 displaying the magnified image of the reference sample on the screen with the
8 magnified image of the located defect.